

## **CLAIMS**

### **What is claimed is :**

- 5     1.     A process for making a synthetic melt spun polyamide filament comprising the steps of:  
         supplying polyamide polymer to a solid phase polycondensation apparatus;  
         supplying a purge gas to the solid phase polycondensation  
10   apparatus at a flow rate in the range of about 2 to about 3 kg/hour per kg of polymer per hour;  
         treating the polyamide polymer in the solid phase polycondensation apparatus with the purge gas at a solid phase polycondensation system pressure of about 110 to about 120 kPascal;  
15           conveying the treated polyamide polymer to a melt extrusion apparatus;  
         melting the polyamide polymer in the melt extrusion apparatus;  
         extruding the melted polyamide polymer through a spinneret plate;  
         and  
20           forming at least one continuous filament of polyamide polymer.
2.     The process of claim 1, further including quenching and cooling the filament.
- 25     3.     The process of claim 2, further including post-treating the filament and winding up the filament.
4.     The process of claim 3, further including wiping the spinneret plate on the capillary exit side, in cycles, wherein each wiping cycle is separated  
30   by about 8 to about 12 hours.
5.     The process of Claim 1 wherein the purge gas is comprised of nitrogen gas supplied at a flow rate in the range of about 2 to about 3 kg/hour per kg of polymer per hour.

6. A delustered synthetic melt spun polyamide filament having a YARN QUALITY greater than about 32.8, wherein YARN QUALITY is defined according to,

- 5        YARN QUALITY = [tenacity (grams/denier)] x (% elongation)<sup>1/2</sup> ;  
said yarn prepared by a process comprising the steps of:  
      providing a synthetic polyamide polymer to a solid phase  
polycondensation apparatus,  
      treating the synthetic polyamide polymer in the solid phase  
10 polycondensation apparatus at a system pressure in the range of about  
110 to about 120 kPascal;  
      conveying the treated polyamide polymer to a melt extrusion  
apparatus;  
      melting the polyamide polymer in the melt extrusion apparatus;  
15        extruding the melted polyamide polymer through a spinneret plate;  
and  
      forming at least one continuous filament of polyamide polymer.